Ergonomics

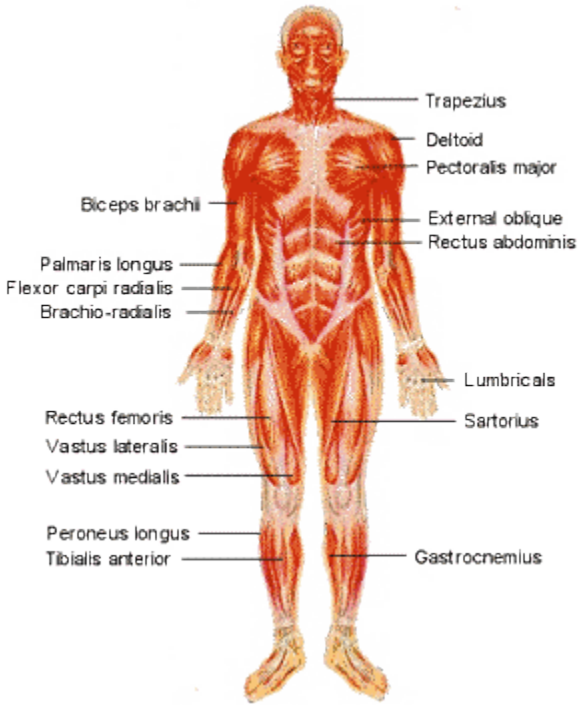
- A study of how to fit the workplace to the worker. While the use of the term Ergonomics has become more common recently, ergonomics is not a new science. The term was actually coined in 1857 by a Polish scholar.

Importance of Ergonomics

- Improve health and safety through the reduction of ergonomics risk factors and resulting work-related injuries and disorders
- Support mission readiness
- Improve comfort, morale, productivity and job satisfaction
- Reduce workers' compensation costs and employee turnover

Injuries — Musculoskeletal Disorders (MSD)

- MSDs are a category of injuries and disorders that deal with the musculoskeletal system.
- These disorders are not usually caused by acute trauma but instead occur slowly over time due to wear and tear on the nervous system and soft tissues, such as:
- Muscles
- Tendons
- Ligaments
- Cartilage
- Nerves



Work-related Musculoskeletal Disorders (WMSDs)

WMSDs are caused or aggravated by work methods and/or environments. WMSDs do not generally result from a single event or accident, but rather are disorders that have developed gradually from chronic workplace and occupational conditions causing repeated trauma.

Common WMSDs include:

Tendinitis (informally also **tendonitis**),

- Meaning inflammation of a tendon (the suffix "itis" means "inflammation"), is a type of tendinopathy often confused with the more common tendinosis, which has similar symptoms but requires different treatment.[1] The term tendinitis should be reserved for tendon injuries that involve larger-scale acute injuries accompanied by inflammation. Generally tendinitis is referred to by the body part involved, such as Achilles tendinitis (affecting the Achilles tendon), or patellar tendinitis (jumper's knee, affecting the patellar tendon).

Bursitis

- A inflammation of one or more bursae (small sacs) of synovial fluid in the body. The bursae rest at the points where internal functionaries, such as muscles and tendons, slide across bone. Healthy bursae create a smooth, almost frictionless functional gliding surface making normal movement painless. When bursitis occurs, however, movement relying upon the inflamed bursa becomes difficult and painful. Moreover, movement of tendons and muscles over the inflamed bursa aggravates its inflammation, perpetuating the problem

Carpal tunnel syndrome (**CTS**), or **median neuropathy at the wrist**

- A medical condition in which the median nerve is compressed at the wrist, leading to paresthesias, numbness and muscle weakness in the hand. Night symptoms and waking at night is a characteristic of established carpal tunnel syndrome.

Herniated disc

- Rupturing of the tissue that separates the vertebral bones of the spinal column.

Physical factors have to occur in combination to pose a risk.
Physical risk factors include:

- Compression
- Non-neutral, awkward or static posture
- Vibration
- High forces
- Repetition
- Duration

By applying ergonomics principles to tasks, jobs and the work environment, physical risk factors can usually be modified or reduced.

Summary

- The key points to remember about ergonomics are that:

1. Ergonomics is defined as fitting the work to the worker.

2. Physical risk factors that can cause WMSDs are :
   force, posture, duration, repetition, and vibration.

3. Physical risk factors can be eliminated or reduced in
   the work place.